



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/371,973 08/10/99 PONZO

J

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IRVINE CA 92614-6364

IM52/0927

EXAMINER
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DOROSHENK, A

ART UNIT	PAPER NUMBER
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1764

3

DATE MAILED: 09/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/371,973	PONZO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alexa A. Doroshenk	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 1999.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____    | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the metering plate which is downstream of an upstream metering plate comprising large flow-through holes than the upstream metering plate (claims 3, 10, 18 and 21) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitation "said removed portion" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1--4, 6-11, 13-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (US 6,183,703 B1) in view of Ashmead et al (5,690,763).

With respect to claims 1, 3, 15 and 16, Hsu et al disclose an apparatus comprising a plurality of thin metal plates (12 and 14) in a stacked contiguous relation (see fig. 3), each having a surface of catalyst material (36) (see fig. 2A, 2B, 2C) and flow-through holes (16) positioned such that fluid flows axially through said plates (see fig. 1).

Hsu et al are silent as to the plates being etched.

Ashmead et al also disclose an integral structure of laminae construction teaching that the catalyst plates can have catalyst deposited on the surface or placed in etched reactor channels (col. 13, lines 1-4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide etched channels for catalyst in the thin plates of Hsu et al as it is merely the selection of functionally equivalent means of placing catalyst on a thin metal plates known to the art.

With respect to claims 2, 9 and 17, Hsu et al discloses wherein a flow adjustment element (80) (reads on metering plate) is provided between groups of thin metal plates to provide uniformity of flow through the apparatus (col. 10, lines 15-22).

With respect to claims 3, 10, 18 and 21, Hsu et al further discloses that any suitable design of flow adjustment element can be used to restrict the flow at selected and determinable rate (col. 10, lines 15-22). In stating thus, Hsu et al has recognized the design of the flow adjustment element to be a result effective variable. A person having ordinary skill in the art would have found it obvious to determine the optimum design or designs of such a result effective variable recognized in the art, as it has been held that such a discovery is ordinarily within the skill level of the art. *In re Boesch and Slaney*, 617 F2d. 272, 276 [205 USPQ 215, 219] (CCPA 1980).

With respect to claims 4, 11 and 19, Hsu et al discloses lateral flow of fuel through and between the plates, but does not demonstrate wherein flow-through holes are axially offset.

Ashmead et al disclose wherein axially offset holes also result in lateral flow of material through a laminate reactor (see fig. 4, 5 and col. 9, lines 47-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to offset the flow-through holes of Hsu et al as a matter of engineering design choice which is functionally equivalent to axially aligned flow-through holes, as known in the art and as demonstrated by Ashmead et al.

With respect to claims 6 and 13, both Hsu et al (see fig. 3 and 4) and Ashmead et al (see fig. 1-3, 6-7 and 8-17) disclose wherein a shape of the thin metal plates can be substantially circular.

With respect to claims 7 and 14, both Hsu et al (see fig. 1 and 3) and Ashmead et al (see fig. 1 and 4-5) disclose wherein the metal plates are bonded to form a monolithic stack.

7. Claims 5, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al in view of Ashmead et al as applied to claims 1, 8 and 15 above, and further in view of Koga et al (5,270,127).

The modified apparatus of Hsu et al discloses all of the claimed structure as discussed above, but are silent as to support columns in the etched portions of the thin metal plates.

Koga et al teach a stacked thin plate reforming apparatus which etched thin metal plates with catalyst material (see fig. 7) and that such plates also comprise support columns (74) which function to support and maintain spaces between plates for flow there through (col. 10, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such supports in the modified apparatus of Hsu et al in order to promote stability of construction and ensure that flow passages are open for reactant flow there through.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 8:00 AM - 6:30 PM.

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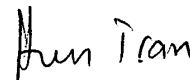
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AAD

AAD  
September 26, 2001



**HIEN TRAN  
PRIMARY EXAMINER**